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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/772,082 | 02/04/2004 | Hiroyuki Uwazumi | FUJI:289 | 2572 |

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| EXAMINER |
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RICKMAN, HOLLY C

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| ART UNIT | PAPER NUMBER |
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1773

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 03/20/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/772,082 | Applicant(s) UWAZUMI ET AL. | |
| | Examiner Holly Rickman | Art Unit 1773 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 16-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8,9,13 and 15 is/are rejected.
- 7) ☒ Claim(s) 3-5,7,10-12,14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/8/07 has been entered.

Claim Rejections - 35 USC § 102

2. The rejection of claims 1-4 under 35 U.S.C. 102(b) as being anticipated by Patel et al. (US 4224381) is withdrawn in view of Applicant's amendments.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381).

Patel et al. disclose a magnetic recording medium having an Al alloy substrate, a first magnetic NiP layer which contains about 6 wt% of P corresponding to the claimed soft magnetic

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layer, and a non-magnetic NiP layer disposed thereon. The thickness of the magnetic NiP layer is as high as 20 micron (ie, 800 microinches) and the thickness of the non-magnetic NiP layer is between the claimed values of 0.5-7 microns (i.e. 80 microinches). See col. 3, lines 34-53; col. 6, lines 6-26.

Patel does not specifically disclose a first magnetic NiP layer containing 0.5 to less than 6 wt% P. However, it would have been obvious to one of ordinary skill in the art at the time of invention to choose a value of less than 6 wt% given Patel's teaching of using "about" 6 wt% (see col. 3, lines 36-40). Thus, use of an amount of less than but "about" 6 wt% is within the scope of Patel's teaching. It would have been obvious to choose such a value from the range taught by Patel given the apparent equivalence of all values within the disclosed range.

5. The rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381) in view of Oshima (US 6818031) is withdrawn in view of Applicant's arguments.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381) in view of Oshima (US 6818031).

Patel et al. disclose all of the limitations of the claims as detailed above, except for the required surface roughness and waviness of the soft magnetic NiP layer.

Oshima teaches that it is known in the art to polish a NiP plated substrate layer to have a roughness Ra of less than 0.25 nm and a waviness Wa of less than 0.25 nm. (col. 11, line 45 to col. 12, line 8). The reference teaches that the improved surface smoothness allows for increased areal density and reduced flying height (col. 1, line 15 to col. 2, line 8).

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It would have been obvious to one of ordinary skill in the art at the time of invention to polish the surface of the NiP layer taught by Patel in accordance with the teaching of Oshima in order to produce a recording medium having reduced flying height and increased areal density.

7. The rejection of claims 10-12 under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381) in view of Wu et al. (US 6432562) is withdrawn in view of Applicant's arguments.

8. Claims 8-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381) in view of Wu et al. (US 6432562).

Patel et al. disclose all of the limitations of the claims as detailed above, except for the claimed structure of the seedlayer, perpendicular recording layer and protective layer deposited on the NiP/Al base layer disclosed therein. The reference teaches that the magnetic recording layer deposited on the NIP-coated Al base is not particularly limited (col. 6, lines 49-63).

Wu et al. teach a magnetic recording structure including a seedlayer, a perpendicular magnetic layer and a protective overcoat layer for deposition on an Al alloy substrate.

It would have been obvious to one of ordinary skill in the art to use the recording layer structure taught by Wu et al. in combination with the NiP-coated Al substrate structure taught by Patel et al. in order to achieve the benefits disclosed by Wu et al. such as high areal density and high magnetic performance such as high SNR.

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9. The rejection of claims 14 under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381) in view of Wu et al. (US 6432562) further in view of Oshima (US 6818031) is withdrawn in view of Applicant's arguments.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 4224381) in view of Wu et al. (US 6432562) further in view of Oshima (US 6818031).

Patel et al. in view of Wu et al. teach all of the limitations of the claims as detailed above, except for the required surface roughness and waviness of the soft magnetic NiP layer.

Oshima teaches that it is known in the art to polish a NiP plated substrate layer to have a roughness Ra of less than 0.25 nm and a waviness Wa of less than 0.25 nm. (col. 11, line 45 to col. 12, line 8). The reference teaches that the improved surface smoothness allows for increased areal density and reduced flying height (col. 1, line 15 to col. 2, line 8).

It would have been obvious to one of ordinary skill in the art at the time of invention to polish the surface of the NiP layer taught by Patel in accordance with the teaching of Oshima in order to produce a recording medium having reduced flying height and increased areal density.

Allowable Subject Matter

11. Claims 3-5, 7, 10-12 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art to Patel fails to teach or suggest a structure having a non-magnetic NiP layer in between the magnetic NiP layer and the base

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layer. The prior art fails to teach or suggest a motivation to add such a layer in between the magnetic NiP layer and base layer taught by Patel.

Response to Arguments

12. Applicant's arguments filed 1/8/07 have been considered but are not persuasive.

Applicant argues that Patel teaches a range of 6-14 wt% which is above the presently claimed range. This argument is not persuasive for the reasons set forth above, in paragraph no.

4.

Applicant also argues that claims 3, 10, and 18 are not met by Patel because the nonmagnetic underlayer 18 taught by Patel is formed over the magnetic underlayer. Applicant argues that the claims call for the nonmagnetic underlayer to be formed under the soft magnetic underlayer. The examiner agrees with respect to claims 3 and 10. The examiner notes that claim 18 is directed to a withdrawn claim.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Holly Rickman", with a stylized flourish at the end.

Holly Rickman
Primary Examiner
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